December 22, 1982

Dear Light-Duty Manufacturer: CD-82-10 (LD)

We have concluded that Shift Indicator Light (SIL) impact on 1984 model year fuel economy label and CAFE values should be determined in much the same way as during the 1983 model year. This conclusion was reached after considering input received following the workshop held on September 15, 1982 regarding SILs. My letter of September 7, 1982 (Ref: CD 82-5) transmitted briefing materials to each of you which outlined the alternatives which were later discussed at the workshop. Subsequent to the workshop, we received written comments from six different manufacturers. These comments did not reflect an industry concensus. Recommendations covered the full range of alternatives spanning from allowing no credit for SILs to allowing the maximum possible credit.

Four fundamental options were considered: (1) allowing the maximum possible credit within the EPA estimated mpg value by testing cars only according to the SIL; (2) allowing no credit within the EPA estimate except possibly for a supplementary statement on the label quantifying the potential SIL benefit; (3) allowing the label to carry two EPA estimated mpg values of equal prominence, one for SIL driving and one for non-SIL driving; and (4) allowing credit within the single EPA estimated mpg representative of the average fuel economy improvement expected in use. The last of these is the approach we have applied to all SIL cases to date, even though a consistent methodology for determining the "average" improvement has not been applied.

We have concluded that the alternative of allowing an average in-use credit within the EPA estimate is the only alternative that is consistent with the current regulations and thus, implementable for the 1984 model year. Further, it is consistent with the goal of the fuel economy labeling program to accurately predict and contrast the in-use fuel economy performance of various vehicle designs. Section 86.128-79(a) of our regulations states, with respect to transmissions:

> All test conditions, except as noted, shall be run according to the manufacturers' recommendations to the ultimate purchaser, provided that: such recommendations are representative of what may reasonably be expected to be followed by the ultimate purchaser under in-use conditions. (Emphasis has been added).

Although the manufacturer may recommend shifting in response to the SIL, available survey data indicates it is not a reasonable expectation that the ultimate purchaser will always follow the SIL. Thus, it would be inappropriate to test cars only according to the SIL and give full credit within the label. Similarly, since available surveys show the SIL is used by a significant fraction of drivers, it is also unrepresentative to ignore it in testing and give no credit within the EPA estimated mpg. The alternative of double labeling may be an effective means to handle this case where neither extreme appears appropriate. However, double labeling represents enough of a departure from the current fuel economy program that it probably should not be implemented without a public notice of proposal and comment process. The time required to complete a formal rulemaking does not allow pursuing this option for the 1984 model year.

Given our conclusion to continue our policy of allowing credit for the average in-use benefit of SILs, it is also desirable to settle on a single consistent methodology for determining the average credit to assure equity among manufacturers. The workshop materials contained several alternatives for determining this average credit. We selected the usage factor approach since it should give a reasonable approximation of the average in-use credit while minimizing the complexity and costs of in-use surveys. Those alternatives that did not rely upon some form of survey, including the approach of developing a standard usage factor, were not acceptable because a manufacturer could either use ineffective SIL designs or misapply them, and still receive the same fuel economy credit as in cases where the SILs were properly designed and applied. In the future as survey data becomes available on a wider range of vehicle designs it may be possible to develop an industry-wide usage factor if we can conclude that all designs and applications perform similarly.

The basic approach we will apply for the 1984 model year will be to test each vehicle both according to the non-SIL shift schedule (i.e., either 15-25-40 or an alternative approved under Advisory Circular No. 72) and again according to the SIL signal. The differential fuel economy will be multiplied by the usage factor and added to the basic non-SIL test value for each test vehicle. The usage factor will be the estimated percentage use of the shift light as derived from a survey of in-use drivers of the applicable model type.

Several manufacturers noted that surveys EPA has accepted to date were time-consuming and expensive. One manufacturer has indicated that phone surveys are currently used to obtain

similar data at less expense and with greater accuracy due to larger sample sizes. We have concluded that carefully conducted phone surveys are an acceptable technique. Conducting phone surveys for each SIL model type can adequately quantify owner acceptance of the device without increasing survey costs beyond what is currently required to determine other alternative shift schedules. We considered eliminating the use of statistical corrections as have been applied in the past in favor of establishing a minimum sample size, since either method would help assure accurate results. However, we recognize that SILs may be applied to low sales model types where large sample sizes may be difficult to obtain. Use of a statistical correction allows credit for low sales applications and should have minimal impact on larger sales' applications where large sample sizes may be expected. Therefore, we have decided to retain the 95 percent one-sided confidence interval technique used previously.

In order to allow fuel economy credit for the year of introduction of a SIL when no in-use survey data are available, the manufacturer may project the usage for initial production. We will accept a manufacturer's projected usage factor up to 65 percent provided that the manufacturer agrees to conduct a survey as soon as practical after introduction, and revise the label values on subsequently produced vehicles if the survey results indicate a lower than expected usage rate. The upper limit of 65 percent represents our estimate of the average usage of those SIL designs that have been surveyed to date discounted to reflect a one-sided confidence interval of 95 percent.

A major issue discussed at the workshop was how to handle cases where a manufacturer has a mix of vehicles within the same base level and model type with and without SILs. We have concluded that, except for cases where a manufacturer elects not to receive credit for the SIL, vehicles with and without SILs should be separated into different base levels and model types by considering vehicles with SILs to have different transmission classes than those without SILs. This will tend to proliferate the number of labels, but given the effort made to determine the appropriate credit for SIL-equipped vehicles, it seems inconsistent to then combine SIL and non-SIL vehicles under one general label.

In summary, we are not making any substantial change to the way we have been handling SILs to date. We are simply settling on one methodology for determining the in-use average improvement in fuel economy expected from the use of SILs. While some details still need to be worked out to assure uniform

implementation, this letter will serve as a guideline for handling case-by-case decisions in the interim.

Questions regarding the handling of your specific cases should be directed to your respective certification team representative. Recommended details for uniform implementation of the approach we have selected, comments on or criticisms of our conclusions, or comments on the desirability and appropriate priority for proceeding with a rulemaking to explicitly deal with SILs and other similar devices should be sent directly to my attention.

Sincerely,

Robert E. Maxwell, Director
Certification Division
Office of Mobile Sources